not longer resist raising the inquiry what advantage certain writers of elementary mathematical texts—Professor Tanner among others—hope to gain in point of logical, or any other sort of completeness, by the following definition of multiplication: "*The product of two numbers is the result obtained by performing upon the first of these numbers (the multiplicand) the same operation that must be performed upon the unit to obtain the second (the multiplier)*"?

Let us see: $5 \times 4 =$ what, on this definition? In this definition nothing is said about how the *unit* is to be "performed upon" to give the 4. I have a perfect right therefore to perform upon it thus: $1^3+1^2+1^1+1=4$, in accordance with the law x^3+x^2+x+1. Now I must "perform on "the 5 in the same way to get the product. This gives me $5^3+5^2+5^1+5=160$. Therefore, in the form stated 5×4 may just as well be 160 as any other number.

Of course, this definition is thoroughly "innocuous" because no high-school pupil ever understands it, and no high-school teacher ever uses it.

The writer would not have the reader believe for a moment that the character of Professor Tanner's book is in any way epitomized by this pointless attempt to introduce fuller adequacy into the definition of multiplication. Pretty much every writer who is impressed only with the need of logical perfection in the high school has used it, and some go so far as to call high-school teachers to account for not using it. The writer challenges it in Mr. Tanner's book, because the book possesses so many distinct points of merit that it can easily stand the challenge.

Mr. Tanner's treatment of factoring is excellent — much superior to the customary treatment. Type-forms typify something to the pupil as he treats them. The book contains many lists of problems, an unusually large number of which have a meaning and are worth solving by high-school boys and girls. Many of the problems are modern in a true sense.

The author evidently does not believe in the early use of graphs in algebra. The book contains nothing before p. 314 on the graph, and this, the writer believes, is unfortunate. Here there are three short sections on "Graphic Representation of Equations." A chapter on "Mathematical Induction" is a valuable feature. Aside from the rather formal development of topics, and a little too early and too continuous insistence on work by rule, the writer regards this as a good one. To say that it is one of the most teachable books of the Cornell Series is no mean praise.

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BOOKS RECEIVED

(The notice here given does not preclude the publishing of a comprehensive review.)

EDUCATION

Principles of Teaching, Based on Psychology. By EDWARD L. THORNDYKE. New York: A. G. Seiler, 1906. Pp. xii+293.

HISTORY AND CIVICS

The Making of the American Nation. A History for Elementary Schools. By JACQUES WARDLAW REDWAY. New York: Silver, Burdett & Co., 1905. Pp. xii+412+56.